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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,065	11/16/2001	Daniel H. Howard	1875.1460001/RES/TCF	7548

26111 7590 07/19/2004

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EXAMINER

NGUYEN, LEE

ART UNIT	PAPER NUMBER
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2682

DATE MAILED: 07/19/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/988,065

Applicant(s)

HOWARD, DANIEL H.

Examiner

LEE NGUYEN

Art Unit

2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-13, 15-20 and 22-24 is/are rejected.
- 7) ☒ Claim(s) 6, 14 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/28/2004 has been entered.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7-13, 15-20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartzman et al. (US 6,385,773) in view of Gray (US 3,700,876).

Regarding claim 1, Schwartzman teaches a method for maintaining the integrity of a communication system, comprising: detecting an impairment on a communication channel of the communication system (col. 10, lines 15-55); characterizing said impairment as one of a plurality of impairments (col. 10, lines 56-65); and adapting operating parameters of the communication system in accordance with said characterization of said impairment (col. 10, line 63 through col. 11, line 6). Schwartzman fails to teach that the impairment types include at least one non-periodic impairment type and one periodic impairment type. However, the art of using autocorrelation to detect they type of random noise (non-periodic noise) or time-limited noise (periodic noise) is conventionally well known, as taught by Gray in column 1, lines 20-25, column 2, lines 14-17. It would have been obvious to one of ordinary skill in the art at the time the invention was to include the non-periodic impairment type and one periodic impairment type of Gray to the system of Schwartzman in order to increase the signal to noise ratio of very low signals in the channels.

Regarding claims 2 and 5, Schwartzman also teaches that said detecting comprises: performing a time domain to frequency domain conversion on a signal associated with the communication channel (FFT);

aggregating a signal magnitude in the frequency domain (col. 9, lines 39-42); comparing said signal magnitude at a set of specified frequencies with threshold values each associated with a frequency from said set of specified frequencies (col. 9, lines 43-52); and reporting a list of frequencies from said set of specified frequencies for which said signal magnitude of an individual frequency exceeds a threshold value associated with said individual frequency or frequency range (col. 9, lines 53-62).

Regarding claims 3-4, Schwartzman also teaches 5MHz – 42MHz (col. 9, line 48).

Regarding claim 7, Schwartzman also teaches that said detecting comprises: examining data packets from the communication channel; determining whether said data packets contain data errors; and detecting a period with which data packets containing data errors arrive from the communication channel (col. 10, lines 45-65).

Regarding claim 8, Schwartzman also teaches that said adapting operating parameters comprises scheduling data transmissions at a frequency without said impairment (col. 10, line 65 through col. 11, line 6).

Regarding claim 9, Schwartzman teaches a system for maintaining the integrity a communication system comprising: an analog receiver 206

(fig. 2A) that receives analog data from the communication system; an analog-to-digital converter 202 coupled to said analog receiver that converts said analog data into digitized data;

A fast Fourier transform FFT processor 210 (fig. 2B) coupled to said analog-to-digital converter that receives said digitized data and performs a time domain to frequency domain conversion of said digitized data; and a processor 214 (fig. 2B) coupled to said FFT processor that examines said converted digitized data to detect an impairment on a communication channel of the communication system and classify said impairment as one of a plurality of impairment types (col. 10, lines 53-65). Schwartzman fails to teach that the impairment types include at least one non-periodic impairment type and one periodic impairment type. However, the art of using autocorrelation to detect the type of random noise (non-periodic noise) or time-limited noise (periodic noise) is conventionally well known, as taught by Gray in column 1, lines 20-25, column 2, lines 14-17. It would have been obvious to one of ordinary skill in the art at the time the invention was to include the non-periodic impairment type and one periodic impairment type of Gray to the system of Schwartzman in order to increase the signal to noise ratio of very low signals in the channels.

Regarding claim 10, Schwartzman also teaches said processor detects said impairment by accumulating a magnitude of said digitized data over a period of time at one or more specified frequencies and examines said specified frequencies to determine whether a threshold has been exceeded (col. 10, lines 45-65).

Regarding claims 11 and 12, the claims are interpreted and rejected for the same reason as set forth in claims 3-4).

Regarding claim 13, Schwartzman also teaches that said processor detects said impairment by comparing a frequency spectrum comprising said digitized data with one or more stored frequency spectra (col. 9, lines 53-65).

Regarding claim 15, Schwartzman also teaches: an upstream demodulator 206 (fig. 2B) coupled to said analog-to-digital converter that demodulates said digitized data into demodulated data; a media access controller (see from MAC Unit, fig. 2B) coupled to said upstream demodulator that extracts data packets from said demodulated data; and inherently a memory coupled to said media access controller that stores said data packets in said memory (see FPGA 210, col. 9, lines 32-41);

wherein said processor identifies said impairment by examining said data packets stored in said memory to identify contiguous groups of data packets with errors and data packets without errors and computing a burst period for said contiguous groups of data packets with errors (col. 9, line 55 through col. 10, line 4 and lines 53-65).

Regarding claim 16, Schwartzman also teaches that said processor schedules outgoing transmissions to not coincide with said burst period (col. 12, lines 18-28).

Regarding claim 17, Schwartzman also teaches that said processor schedules data transmissions at a frequency without said impairment (col. 10, line 65 through col. 11, line 3).

Regarding claim 18, the claim is interpreted and rejected for the same reason as set forth in claim 9.

Regarding claim 19, the claim is interpreted and rejected for the same reason as set forth in claim 10.

Regarding claim 20, the claim is interpreted and rejected for the same reason as set forth in claim 13.

Regarding claim 22, the claim is interpreted and rejected for the same reason as set forth in claim 15.

Regarding claim 23, the claim is interpreted and rejected for the same reason as set forth in claim 16.

Regarding claim 24, the claim is interpreted and rejected for the same reason as set forth in claim 17.

Allowable Subject Matter

3. Claims 6, 14, 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 6, the prior art of record fails to teach that said detecting comprises: performing a time domain to frequency domain conversion on a signal associated with the communication channel; computing a pulse width and a time between pulses for said signal within one or more frequency ranges; and detecting a periodic signal within said one or more frequency ranges.

Regarding claims 14, 21, the prior art of record fails to teach that said processor detects said impairment by examining a frequency band of said digitized data, computes a pulse width and a time between pulses for a DC

waveform in said frequency band, and tracks an impulse train from said DC waveform.


Response to Arguments

4. Applicant's arguments with respect to claims 1-5, 8-13, 15-20, 22-24 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEE NGUYEN whose telephone number is (703)-308-5249. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, VIVIAN CHIN can be reached on (703) 308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 7/9/04
LEE NGUYEN
Primary Examiner
Art Unit 2682